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ABSTRACT

It is argued in this paper that "somehow" microcomputers must become a mandatory part of a community college education. For many reasons, microcomputers are flooding the college campus. The most important of these reasons is the recognition that computers are as relevant to the humanities and social sciences as they are to the physical sciences and engineering and that they will help student learning in all fields when used in a meaningful way. Though there are numerous examples of instructors devising innovative uses for computers in classes in management, drama, sociology, philosophy, and writing, there are educators who are opposed to computer fluency requirements. Some of these reasons are based on myths about computers undermining the art of the written word and eliminating personal interaction between student and teacher; beliefs that microcomputers will return instruction to repetitious drill-and-practice memorizing; and the vision of the computer user as isolated from human contact. Though evidence indicates that these perceptions and fears are unfounded, real problems unique to the community college exist. The characteristics and attendance patterns of typical community college students make it unreasonable and unacceptable to expect many of these students to purchase a microcomputer. Community colleges can promote the computer literacy of their students if they provide access to microcomputers for all part-time and freshman students, and require sophomores to own their own computers. (LAL)

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REQUIRING MICROCOMPUTERS IN COMMUNITY COLLEGES

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Computers are generally known for their usefullness to engineering and the sciences. The computer has natural ties to scientific activity-the activity of model building, model testing and model simulating. But in the marriage of "arts and sciences" cam computers be useful for the "arts" or, more importantly, can computers help any student of arts or sciences or of the professions, regardless of specialization? Can computers help students learn? Can they encourage creativity? Can they stimulate curiosity? If the answers to the above questions are yes, should colleges and universities require computer literacy of each student? If computer literacy, then why not computer fluency? And again, if the answer is yes, then what about the community college? Are there risks?

Requiring microcomputers in community colleges is the topic of this paper. I will argue that "somehow" computers must be mandatory in community colleges. I wish to present this argument in several parts.

First, I will claim that computers will help students learn and that it is inevitable that all college and university students will soon be required to be computer fluent. Next, I wish to discuss some myths about computers and learning. Then I wish to discuss some problems in requiring computer fluency-problems unique to community colleges. Last, I wish to suggest how some of these problems might be resolved.

Many colleges and universities are already extensively making computing resources available to their students or are requiring students to own their own computer. Some of these are Massachusetts Institute of Technology, Carnegie-Mellon University, Clarkson University, Stevens Institute of Technology, Vassar College, Grinnell College, Rochester Institute of Technology, Rensselaer Polytechnic Institute, Case Western Reserve, Stanford University, University of Michigan, Evergreen State College, Drexel University, Brown University, Dartmouth College, Reed College, Dallas Baptist College,

Drew College of Liberal Arts etc. The list is not complete, only intended to demonstrate the variety, and the list is growing. Why?

There are many reasons why micro computers are beginning to flood college campuses, and not just the desks of scientists and graduate students. One reason is economic-microcomputers are becoming relatively "inexpensive." Another reason is "userfriendliness" - which means that students and faculty members no longer require elaborate training to use them. Another and the most important reason, is the recognition that computers are as relevant to the humanities and the social sciences as they are to the physical sciences and to engineering. Computers manipulate symbols and there is no device more proficient at manipulating symbols than a computer. But numbers are symbols, words are symbols, concepts are made up of symbols. Education, regardless of specialty, is the manipulation of symbols. When used in a meaningful way, computers will help students learn.

Clarkson School of Management professor Ralph Janaro: "What we're trying to teach students is how to think, not how to plug-in numbers. The mechanics of getting a solution won't be as important as what the students do once they arrive at that solution." He predicts that the only limitation on the computer will be a lack of imagination on the users part.

In the drama department at CarnegieMellon University, for example, students are using computers to learn st age lighting and are writing plays on computer terminals." They used to use scotch tape and throw paper on the floor, says Akram Midani, the dean of fine arts. "But the act of constructing a dramatic text is beautifully suited to a computer's word-processing ability."

The potential of using computers to enhance learning is great. Microcomputers can change the way students learn, they can show how complex processes work. John Kemeny, Dartmouth's former president, says computerization allows students to work on "more substantial problems" and learn by discovery rather than note-

taking. "Suppose you are talking about pay discrimination against women in a sociology course," he hypothesizes. "You can take actual current statistics on age, sex, education, pay and so forth, and let students run the correlations and decide for themselves whether it is a problem."

Nicholas Armington, a senior at Dartmouth College, has used computers to study philosophy, create random geometric patterns in a course on art and technology and brush up on his French. While studying statistics he used computers to verify the probabilities of such large-scale events as flipping coins thousands of times. "The computer lets you run through a large sample you could never generate yourself," he says. And, of course, there's the advantage of word processing. Armington says he has "never written a paper onto a piece of paper."

The advantages of word processing go beyond convenience, speed and accuracy and neatness. Kenneth C. Rodgers, the president of Stevens Institute of Technology, believes that computers will help students to become better writers. "The idea has not been tested, but I have a strong feeling that the mechanics of good writing-paragraphing, punctuation and spelling can be taught more readily using a computer," he said. "One of the interesting things about computers is that they are totally unforgiving." He explained that a minor difference is punctuation in programming, such as a period used for a comma, can change meaning. He feels that the discipline the student learns in mastering a computer can also help to improve sensitivity to the written word.

"The computer," says Richard M. Cyert, president of Carnegie-Mellon, "is the most significant addition of capital to students since the printing press." He thinks that wide spread use of computers will stimualte analytical thinking. "When you use a computer, you have to be more specific."

So, is every educator in favor of requiring students to be computer-fluent? The answer is no. Then why? There are doubtless many reasons-some valid and some perhaps invalid. Some of the invalid reasons are lack of knowledge about what a computer can do (and the reluctance to learn), resistence to change, and myths. What kind of myths?

Computers will undermine the art of the written word and the personal interaction between student and teacher. The computer is an impersonal and mindless machine which will preclude creativity. A computer will only tell you what you tell it to say.

Two thousand years ago, Plato chronicled the shift from an oral tradition to a written one. In one of the diaglogues, he records the objections of Socrates, who argued that words on paper undermine the "art of dialectic," the personal interaction between student and tutor that constitutes words "go on telling you just the same thing forever," Socrates declared in the diaglogue "Phaedus." "If men learn this, it will implant forgetfulness in their soul."

The printed word represented a threat to the authority of scholars, putting an alternative source of knowledge into the hands of students. It was denounced as impersonal and mindlessly repetitious, precluding the creativity that took place when scribes amended and commented on the manuscripts they were copying. According to Patrick Suppes, professor of philosophy at Standord University, it was not until the end of the 18th century that books were extensively used for teaching in schools.

Another myth about microcomputers is that they will only become a means of repetitious (traditional) drill-and-practice memorizing. Worse than that, some feel that they will merely become sophisticated and expensive toys for students and faculty. This does not need to be the case, and in fact, is not in many schools. The success will depend on integrating the systems into the schools' curriculum. The best way for faculty to ensure the systems "applicability" is for the faculty to participate in development.

Another myth about the use of microcomputers is the vision of the computer user glued to a monitor screen and isolated from human contact. All evidence indicates that this is just not true. On the contrary, on many campuses, the computer has brought together students who would not other wise have anything in common. More importantly, the computer has brought faculty together across departments and divisions, who prior to computers had very little in common. It may turn out to be that computers may be the best thing that ever happened to "interdisciplinary studies." Different disciplines, which hardly knew the other existed, are now talking to each other about their now common problems on the microcomputer.

There would be, of course, problems and risks in requiring microcomputers in colleges and universities. These problems have been discussed and written about at length, and they are being resolved. But are there any problems that are unique to community colleges? I think there are, and I think they fall into two general groups.

The first problem is that there are many students in a community college that plan to take only a handful (or even one) of courses. Requiring a student to purchase a microcomputer in order to take one or two courses would be not only unreasonable, but doubtlessly unacceptable.

The second problem is the "high" attrition rate of a typical community college. The philosophy of giving every student an opportunity to attend college has as a negative consequence the fact that many of them do not complete their intended goals and programs. Requiring student sthat will not continue to the second or third semester to buy a microcomputer for such a brief period of time would also be unreasonable and unacceptable.

A third problem the problem of finances, although a major problem, is not unique to community colleges. I feel that it is inevitable that all college students will have to become computer fluent - and as a consequence the financial problems will be resolved. I feel that it is inevitable that every college and university student will be required to own a microcomputer.

But if college and university students are becoming computer fluent what about community college students? I think the conclusion is inescapable. We, the community colleges, would be doing our students a great disservice if we were not to make our students computer literate. The community college student, in order not to be at a disadvantage, will also have to own a microcomputer. But when? What about part time students and those who do not complete their programs? I suggest the following compromise.

The schools will have to provide access to microcomputers to all part-time and freshman students. Sophomore students will have to own their own computers.

Is the solution so simple? No. Can the problems be resolved? Yes. Can the money be generated? Yes. Will faculty be reluctant? Yes. Can they be convinced? Maybe. Are microcomputers inevitable in community colleges? Yes.

REQUIRING MICROCOMPUTERS IN COMMUNITY COLLEGES

by George Popel

BIBLIOGRAPHY

"A Computer on Every Desk" by Donna Osgood
BYTE magazine, June 1984

"Computers in the Groves of Academe" by Edward B. Fiske
The New York Times magazine, May 13, 1984

"Stevens Focuses on Computers" by Elizabeth M. Fowler in the Careers column, Business Day Section
The New York Times, October 31, 1984

"Micros Flood Campuses" by Margie Ploch
High Technology magazine March, 1984

"College Students Learn to Live with Computers" by Barbara Wierzbicki in the Using Micros column
Popular Computing, January 16,1984

"The Microcomputer Environment at Stevens Institute of Technology" - a paper presented by Joseph J. Moeller Jr. (of Stevens) at the 1984 ASEE Annual Conference Proceedings

"Making the Grade" by Carol Thorsten-Stein
Digital Review, September 1984

EDUCOM Computer Literacy Newsletter
Steven W. Gilbert, Director
Vol. 1, No. 3, Spring 1984

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